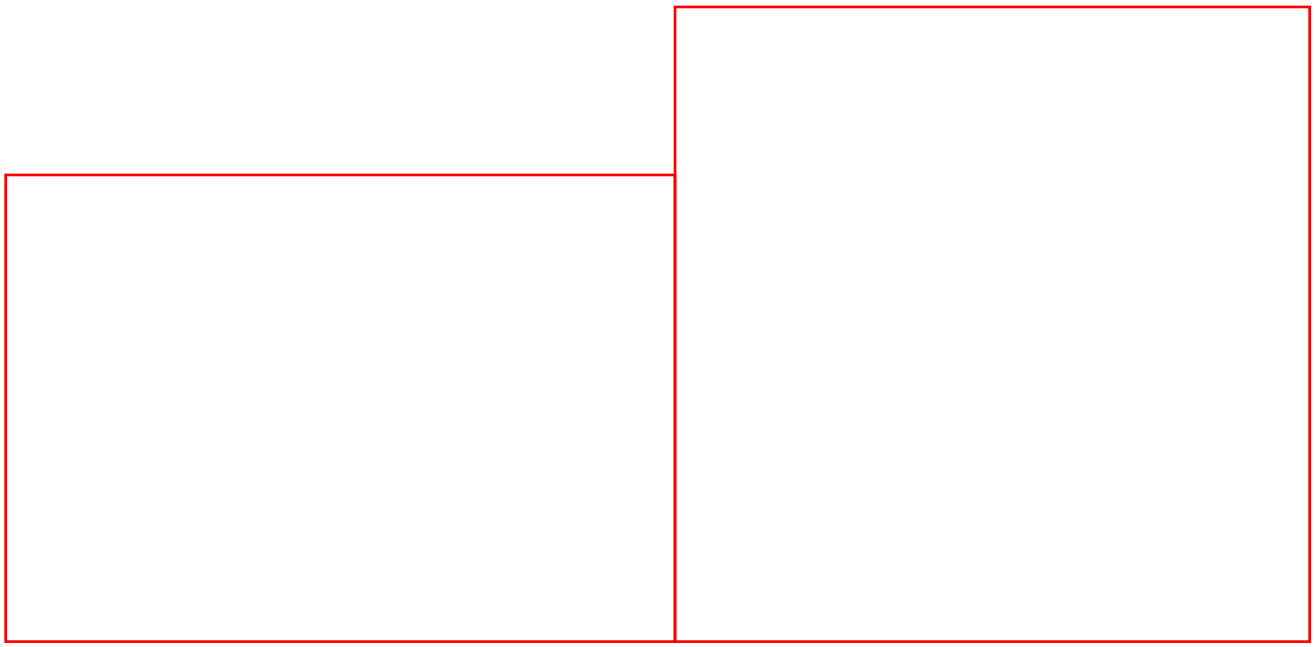
"The Hill" Project

Instructions for Students



Economic, demographic, and social forces can bring about change in neighborhoods in space and time. The University Hill, or "The Hill" neighborhood in Boulder Colorado provides an excellent case study for analyzing these forces. Lying just west of the campus of the University of Colorado, the Hill developed a reputation and the caracteristics of a college neighborhood. In 1970, baby boomers entering their college years caused university enrollments to expand. Areas near universities are often under pressure to develop affordable housing. Landlords can realize a profit by splitting up single-family homes into multiple-unit apartments.

Related Link:

University Hill Virtual Field Study from the University of Colorado, Boulder, Department of Geography.

Download the data for the Hill unit in .zip format.

Using your notes, maps, and the Mason article from the 1972 *Journal of Geography*, answer as completely as possible each of the following questions on your own. Information you have determined by interpreting your maps should be an important part of each answer.

Question 1:

Does The Hill fit the ghetto model today? Yes or No? Defend your position. Look at the model. How do the different characteristics fit the model?

Question 2:

Explain how this area has changed since 1970. What elements are the same as in 1970? What elements are different?

Question 3:

Pick an attribute for which there is information for 1970, 1980, and 1990. Analyze how it has changed over time on the Hill and across Boulder and speculate about the reasons for these changes.

Question 4:

Has the core area identified in the 1971 article increased in size? Explain.

Question 5:

Many people in Boulder view The Hill in negative ways. If you could make changes to "The Hill" to improve its image, what would they be?

The following are the instructions for generating your maps and data with Geographic Information Systems software called "ArcView."

Access ArcView: BHS PowerMac
ESRI folder
AV_GIS30a folder
ArcView

Create a new view.

Add your themes, or layers of information:
including:

1. hwys - The major highways.

2. streets - The streets.
3. blockgrp - The block groups - Census statistical areas.
4. tracts - The Census Tracts - Census statistical areas.

Block Groups are smaller geographic areas that nest within Census Tracts.

The themes will be displayed to the left of your view in the table of contents.
The table of contents on left draws from bottom to top.
Click on the streets and highways and drag them above the tracts and block groups.

At this point, and often during your project, you should ***save*** your project:

Cancel view by clicking in upper left.
File --> Save As --> go to folder BHS PowerMac.
Go to folder "Student Temporary"
Save as <teamname.apr>

The following is a list of data items in the tracts table. The blockgrp table contains a subset of these data items.

Field	Description of Data
Pop1990	1990 Population
Pop1996	1996 Population
Gr90_96	1990-1996 Growth percent
Households	1990 Number of Houstholds
Males	1990 Number of Males
Females	1990 Number of Females
White	1990 Number of Whites
Black	1990 Number of Blacks
Ameri_es	1990 American Indian /Eskimo
Asian_pi	1990 Asian/Pacific Islanders
Other	1990 Other racial origin
Hispanic	1990 Hispanic population
Nonwhite%	1990 Nonwhite population % of total
Age_under5	1990 Population under 5 years of age
Age_5_17	1990 Population Between 5 and 17 years of age
Age_18_29	1990 Population Between 18 and 29 years of age

Age_30_49	1990 Population Between 30 and 49 years of age
Age_50_64	1990 Population Between 50 and 64 years of age
Age_65_up	1990 Population 65 years old and older
Nevermarry	1990 Population never married
Nevermarr%	1990 Population never married as % of total
Married	1990 Population married
Separated	1990 Population separated
Widowed	1990 Population Widowed
Divorced	1990 Population Divorced
Hsehld_1_m	1990 Households headed by one male
Hsehold_1_f	1990 Households headed by one female
Marhh_chd	1990 Married with children households
Marhh_no_c	1990 Married Housholds with no children
Mhh_child	1990 Male Households with children
Fhh_child	1990 Female Households with children
Hse_units	1990 Housing Units
Vacant	1990 Vacant Housing Units
Owner_occ	1990 Housing Units occupied by owner
Renter_occ	1990 Housing Units occupied by renter
Median_val	1990 Median value of housing units
Medianrent	1990 Median rent of housing units
Units_1det	1990 Housing Units with 1 detached unit
Units_1att	1990 Housing Units with 1 attached unit
Units2	1990 Housing Units as a Duplex; 2 units per structure
Units3_9	1990 Housing Units in 3-9 units per structure
Units10_49	1990 Housing Units in 10-49 units per structure
Units50_up	1990 Housing Units in 50 or more units per structure
Mobilehome	1990 Housing Units as mobile homes
Renteroccu%	1990 Housing Units occupied by renters as % of total
Crime96	Total Crimes in Census Tract, November 1996 through November 1997
Medrent70	1970 Median Rent
Medrent80	1980 Median Rent
Rent70%	1970 Renter occupied housing units as percent of total

Rent80%	1980 Renter occupied housing units as percent of total
house1970	1970 Housing Units
house1980	1980 Housing Units
house_3_49_70	1970 Housing Units in 3-49 units per structure
house_3_49_80	1980 Housing Units in 3-49 units per structure
house_3_49_70%	1970 Housing Units in 3-49 units per structure as percent of total
house_3_49_80%	1980 Housing Units in 3-49 units per structure as percent of total
pop_1970	1970 Population
pop_1980	1980 Population
coll_age70	1970 College Age population
coll_age80	1980 College Age population
coll_age70%	1970 college age population as percent of total
coll_age80%	1980 college age population as percent of total
medval70	1970 median housing unit value
medval80	1980 median housing unit value
medval_s70	1970 median housing unit value. Numbers below 1.0 = value is less than average value for all tracts for 1970. Numbers above 1.0 = value is greater than average value for all tracts for 1970.
medval_s80	1980 median housing unit value. Numbers below 1.0 = value is less than average value for all tracts for 1980. Numbers above 1.0 = value is greater than average value for all tracts for 1980.
medval_s90	1990 median housing unit value. Numbers below 1.0 = value is less than average value for all tracts for 1990. Numbers above 1.0 = value is greater than average value for all tracts for 1990.

From this list, you are to choose 12 to 16 characteristics which will support your argument as to whether or not "The Hill" is a student ghetto.

Double-click on the tracts or the block groups themes to access the legend editor.

Change the legend type from single symbol to graduated color.

Change the classification field to "vacant" to map the number of vacant housing units.

Apply.

Change "normalize by" to "Hse_units" for the percentage of vacant housing units of total housing units.

Note that when mapping a population variable, you should normalize by the Pop1990. In this way, you will obtain the percent of your variable in relation to the total population for the tract or block group.

Apply.

Cancel legend editor by clicking box in upper right corner.

Change the name of the view.

Top menu bar
View
View Properties
Change name to "Vacancy Rate."

Change the name of your theme.

Top menu bar
Theme
Theme Properties
Change theme name to "Vacancy Rate."

Change the highways symbol:
Double-click on hwys.shp to call up the legend editor.

Click on "Load" in the upper right of the legend editor.
Load the hwys.avl file in the Hill folder.
Apply

Repeat the above process to examine other variables.

Create a Layout

Displaying the results of your analysis is an important part of GIS work.

In ArcView, a layout is used to plot these results to the screen or to the printer.

Each of your layouts should contain:

1. Your name.
2. Map title.
3. Views you have selected to plot.
4. Legends for each selected view.
5. Map Scale.

Create a layout that allows the user to compare two characteristics to determine if they are related. Compare median rent to vacancy rate.

Layout
New
Top menu bar
File
Page Setup
Landscape (sideways)
OK

Create a view frame on the display by clicking and holding on the far right button. This is the button that looks like a globe.  Choose the first icon that appears in the vertical list. Now you can select your views.

Move cursor inside your layout. The cursor should appear as a plus sign.
Click and drag to set the size of your first view (median rent).
Place it on the left side of your layout.
The "View Frame Properties" menu should appear.
Select "Median Rent" and OK.

Select the arrow tool and move your view to the desired location.
Resize your view by adjusting any corner of the view.

When complete, click on the globe tool and add the "Vacancy Rate" using the above procedures.

Add your legends next.
Click on globe tool. 
Access second icon underneath.

Drag a box for your legend.
The "Legend Frame Properties" menu should appear.
Select "Median Rent" and OK.

Size and position your legend on your layout.
Add the legend for vacancy rate in the same manner.

Add a north arrow by clicking on the globe tool and selecting the fourth button underneath.
Drag a box and position your north arrow.

Add a title, any descriptive text, and your name by clicking on the "T" text button. 

If you want to change the font and size of your text:

- Window
  - Show Symbol Window
    - Select font, characteristics, size

Save your project !

Print your layout.

- File
  - Print

Create new views with characteristics you select. Remember that you need to choose 12 to 16 characteristics to support your argument.

Create and print new layouts displaying your characteristics. All layouts should contain 2 maps.

Save your project.

Go back to the Boulder High School GIS Initiative.

*** *End of instructions.* ***

hill.html
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